



## Prematurity Prevention Summit 2016

*Evidenced-Based Practice Update:  
Strategies to Prevent Preterm Birth*



## Prevention of Preterm Birth

Utah Women and Newborn Quality Collaborative  
Maternal Intervention Committee

Frank Powers, MD, Sean Esplin, MD, Julia Johnson, MPH  
Prematurity Prevention Summit  
LDS Hospital  
October 24, 2016



## Acknowledgments

- Sean Esplin, MFM
- Erin Clark, MFM
- David Turok, OB-GYN, Family Planning
- Julia Johnson, UDOH



## Utah Women and Newborn Quality Collaborative (UWNQC)

- Statewide multi-stake holder network designed to improve perinatal outcomes in Utah
- **Mission:** "Improve maternal and neonatal outcomes through collaborative efforts centered around quality improvement methodology and data sharing"



## Preterm Birth

- 1 in 8 births in US (12%)
- Utah singleton PTB rate 9.5% (in 2010)
- Estimate cost in US \$26 billion per year (\$51,000 per infant)
- Leading cause responsible for 85% of all perinatal morbidity and mortality



## Risk Factors for Preterm Birth

- Personal history of preterm birth
  - Strongest
- Incidental Short Cervix
- Unintended pregnancy
- Short inter-pregnancy interval



## Focus on women with a history of SPTB



## Impact of Recurrent Preterm Birth

- 15% of all preterm births are recurrent preterm births
  - 75,000 of the 500,000 PTB in the US annually
- Interventions including progesterone reduce rate by up to 30%
  - Estimated that 10,000 PTB prevented annually\*
- The only type of PTB that can be accurately predicted



\*Petrini et al. Obstet Gynecol 2005;105(2):267

## Progesterone Therapy

- Meta-analysis of randomized trials
  - 7 trials of 17OHP to prevent recurrent PTB
  - Use 17 OHP 250 mg IM weekly beginning at 16-20 weeks
  - Risk for PTB < 37 wks - 1020 women enrolled
    - RR = 0.58, 95% CI = 0.48-0.70
  - Risk for infant with birth weight of < or =2.5 kg - 872 infants
    - RR = 0.62, 95% CI = 0.49-0.78
  - Risk of an infant diagnosed with intraventricular hemorrhage -458 infants
    - RR = 0.25, 95% CI = 0.08-0.82



## Vag P vs. 17 OHPC

- Prospective randomized trial for women with history of SPTB
  - 90 mg vaginal progesterone gel daily (n=253)
  - 250 mg 17 OHPC weekly (n=249)
  - Started at 14-18 weeks
- Inclusion
  - Singleton between 14 and 18 weeks gestation
  - History of previous SPTB
    - Included women who had cerclage in previous pregnancy



## Vag P vs. 17 OHPC

- Primary outcome GA at < 34 weeks gestation
  - Vag P 42/253 (16%)
  - 17 OHPC 64/249 (25.7%)
  - P = 0.02
  - OR 0.58 (95%CI 0.37-0.89)



## 17 P The Bottom Line

- Screen all patients for history of SPTB
  - Live birth between 20 weeks 0 days and 36 weeks 6 days
  - Any type of delivery after spontaneous labor, PPROM, Abruption or Silent cervical dilation
- For previous deliveries between 16 -24 weeks
  - Consider prophylactic cerclage



## 17 P The Bottom Line

- Progesterone therapy
  - 1<sup>st</sup> Line 17 OHPC
    - Dose is 250 mg IM weekly
    - Start at 16 weeks if possible but still some affect as late as 24 weeks
    - Use Makena if possible but may use compounded if insurance issue or allergy documented
  - 2<sup>nd</sup> Line Vaginal Progesterone
    - Natural progesterone 200 mg suppository
    - Crinone gel 90 mg nightly



## Progesterone Therapy and...

- Not for twins or triplets
- Not for women with symptomatic labor unless previous history of PTB
- Still offer 17 OHPC even if last delivery was at term
- Progesterone and cervical shortening
  - Start treatment if not previously initiated
  - 17 OHPC vs vaginal progesterone



## How to get 17P

- Rx for 17-OH progesterone 250mg/ml
  - 250mg IM weekly 16-36 weeks
- ICD 10 “Supervision of pregnancy with history of preterm labor” (second, third, unspecified trimester)
  - O09.212, O09.213, O09.219
- Makena only FDA-approved formulation



## How to get 17P

- Cost \$15,000 per pregnancy (\$690 per injection)
- Co-pay and insurance coverage varies
- Patient assistance programs
  - Free for unfunded patients who meet eligibility
  - Co-pay assistance (Medicaid, Tricare not eligible)
- UWNQC recommends facility establishes protocol



## The role of cerclage

Which patient and when



## History of SPTB and Short Cervix

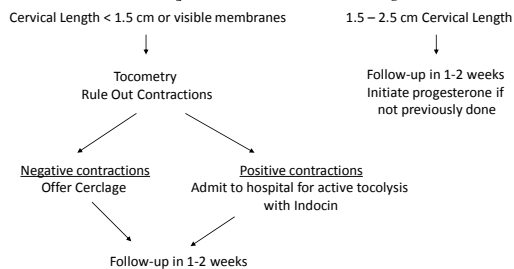
- Meta-analysis of 5 trials
- Women with a history of SPTB and short cervix (<2.5 cm) n=504
- Rate of PTB < 35 weeks
  - 28.4% (71/250) in the cerclage compared with 41.3% (105/254) in the no cerclage groups
  - (relative risk 0.70, 95% confidence interval 0.55–0.89)
- Cerclage also significantly reduced
  - PTB < 37, 32, 28, and 24 weeks of gestation.
  - Composite perinatal mortality and morbidity (15.6% in cerclage compared with 24.8% in no cerclage groups; relative risk 0.64, 95% confidence interval 0.45–0.91).



Berghella et al. Obstet Gynecol 2011; 117:663

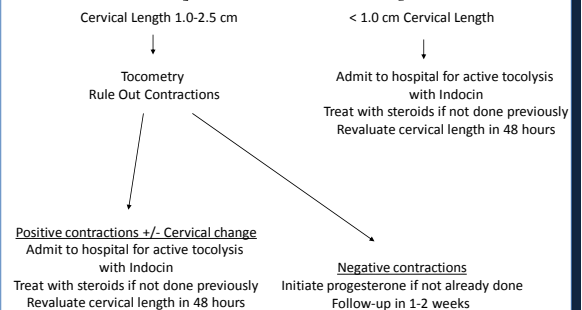
### Gestational Age < 24 weeks

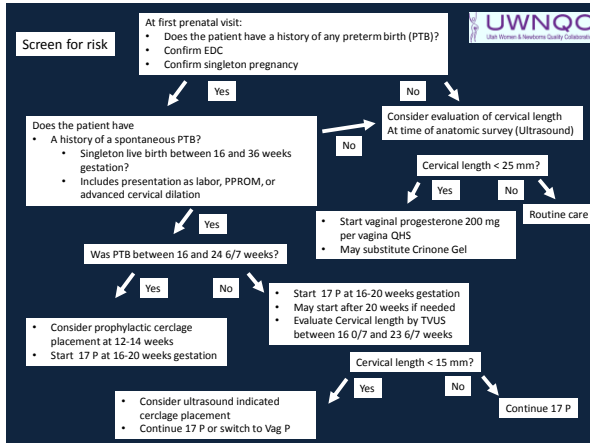
#### Evaluation and treatment of short cervix



### Gestational Age > 24 weeks

#### Evaluation and treatment of short cervix





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Thank You



## Transferring Smoothly: The State of Out-of-Hospital Birth Transfers in Utah

ERIN A. S. CLARK, MD  
MATERNAL FETAL MEDICINE



### Disclosure

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- I am an obstetrician...
- ...An obstetrician sympathetic to a woman's right to choose where and how to deliver

### Transitioning Smoothly

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**Acknowledgement of two truths is necessary in order to have this conversation:**

- 1. Women are going to continue to choose to deliver at birth centers and at home.
- 2. Women are occasionally going to need transfer to a hospital for management of complications / concerns.

### Transitioning Smoothly

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- The relative rarity of the event only makes the topic more relevant, because it is hard to do something really well, when we only do it occasionally.

## Objectives

- Introduce UWNQC Out-of-Hospital Birth Subcommittee
  - Mission, members, work-to-date
  - Tools derived from the collaborative
  - Opportunities for future work



## Out-of-Hospital Birth Subcommittee: Mission

First convened, November 2013

- 1) Analysis of the current state of out-of-hospital births in Utah
- 2) Identification of maternal and neonatal safety issues related to out-of-hospital birth and transfers
- 3) Creation of statewide action items



## Out-of-Hospital Birth Subcommittee: Members

- Multi-disciplinary team of stakeholders:
  - Obstetricians, pediatricians, nurses, CNMs, community midwives, hospital and public health administrators
- Open meeting (everyone welcome)
  - Second Tuesday, 3:00-4:30 pm, Dept. of Health (Highland)





## Informational Resources

- Utah Best Practice Guidelines, Transfer to Hospital from Planned Out-of-Hospital Birth
- Three Questions, Detouring Form
- Mowels Infographic
- Home Birth Summit Best Practice Guidelines, Transfer from Planned Home Birth to Hospital
- Planned Out-of-Hospital Births in Utah, 2010-2012: A Descriptive Review

## Maternal Transfer Form

- UWHOG Maternal Transfer Form (Fillable)
- UWHOG Maternal Transfer Form (Printable)

## Neonatal Transfer Form

- UWHOG Neonatal Transfer Form (Fillable)
- UWHOG Neonatal Transfer Form (Printable)

## Hospital Specific Transfer Algorithms

- Davis Hospital and Medical Center (Layton, UT)
- Intermountain Medical Center (Murray, UT)
- Jordan Valley Medical Center (West Jordan, UT)
- University of Utah Health Care (Salt Lake City, UT)

## Hospital Specific Transfer Referral Guides

- Intermountain Medical Center (Murray, UT)
- Jordan Valley Medical Center (West Jordan, UT)

## Out-of-Hospital Birth Resources

## First Report on Planned Out-of-Hospital Births in Utah

## Planned Out-of-Hospital Births in Utah, 2010-2012: A Descriptive Review

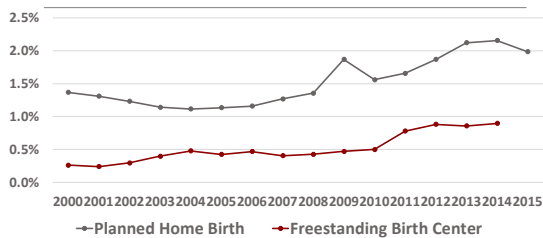
Utah Department of Health, Maternal Child Health Bureau

January 6, 2015

## Background:

The U.S. Department of Health and Human Services recently published a data brief indicating that large changes in birthing patterns in the United States have occurred over the past century. In 1900, almost all births occurred outside a hospital, most of which occurred at home. This proportion fell to 44% by 1940 and to 1% by 1969. (1) Planned out-of-hospital (OOH) births are still relatively uncommon in Utah, but the trend is increasing (see Figure 2).

## Planned Out-of-hospital Births, 2000-2015



## Out-of-Hospital Birth Report, 2010-2012

- Descriptive statistics
- Notable limitations
  - Unable to identify intended out-of-hospital births who ultimately delivered in the hospital
  - Unable to identify intrapartum fetal deaths that occur in an out-of-hospital setting


➡ Changes in the birth and fetal death certificates






## Feedback: Transfer Process & Forms

- We need a forum to collect feedback on:
  - What is working
  - What isn't working
  - General concerns and observations
  - Use of the transfer forms and other tools
- Need to collect de-identified information
- Goal of identifying key themes



Click Here



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Utah Women & Newborns Quality Collaborative

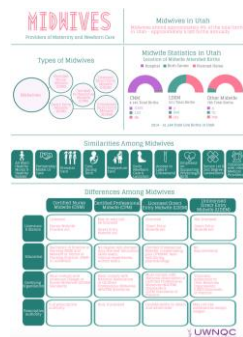
Maternal / Neonatal Transfer Process Feedback Survey

This survey is being conducted by the Utah Women and Newborn Quality Collaborative (UWNQC) and is designed to improve the process of out-of-hospital (OOH) to hospital transfers.

Your responses will be kept confidential and will not be shared, nor will you be identified by name in any reports. Participation is voluntary. If you don't want to participate, or if you don't want to answer a particular question, that's okay. Please expect to spend about 5-7 minutes to answer the following 12 questions. If you have any questions, please contact Julia Johnson, Maternal and Infant Health Program QI Director at 801-273-2856. Thank you for your time.

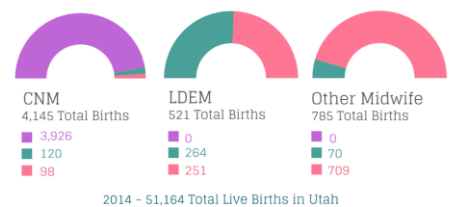
## Midwife Infographic

- Educational reference regarding midwives in Utah
- Types
- Statistics
- Similarities & differences



## Midwife Statistics in Utah

Location of Midwife Attended Births



## Future Directions

- New Out-of-Hospital Birth Report to be published 2017
  - Eye toward future publication opportunities
- Transfer algorithms for all facilities
- Internal Quality Measures
  - E.g., Can we accurately identify intended OOH Birth Transfers?



Thank you to the following individuals who have committed your time and energy for this cause:

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 Launa Campbell, DEM  
 Megan Kimberly, DNP, CNM  
 Julia Johnson, MPH  
 Laurie Baksh, MPH



## Prevention of Preterm Birth: The Role of Highly Effective Reversible Contraception

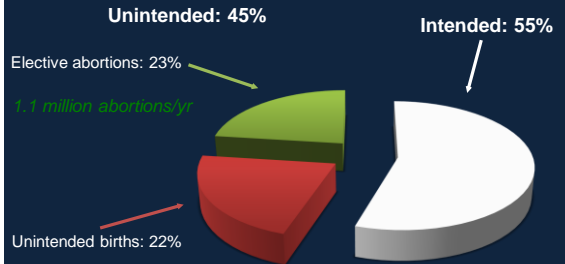
David Turok, MD, MPH  
 October 24, 2016



Contraception is currently too hard  
&  
It's too important for us to not do a  
better job

- **The Big Goal** → Decrease PTB
- **The Goal** → Meeting contraceptive needs
- **The Path** → Improving access to all contraceptive methods, especially HERC

## Unintended Pregnancy in the U.S.



UWNQC  
Utah Women & Newborns Quality Collaborative

Finer and Zolna. NEJM 2016;374:843-52.

Contraception is highly effective

Among U.S. women at risk of  
unintended pregnancy...



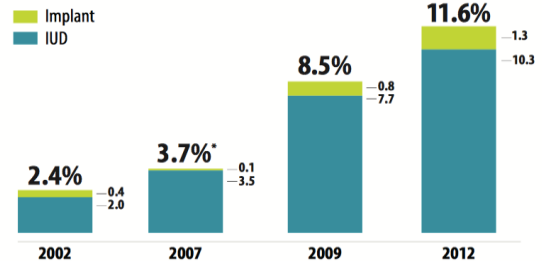
guttmacher.org

©2016

U.S. women's use of long-acting reversible  
contraceptive (LARC) methods, like the IUD,  
has increased over the past decade



Female contraceptive users aged 15–44



www.guttmacher.org

\*Numbers do not add to total due to rounding.

## Highly Effective Contraception Can Play an Important Role in Reducing PTB



**UWNQC**  
Utah Women & Newborns Quality Collaborative

## Contraception Can Prevent PTB

Hx of PTB  
(High Risk)



Unintended Preg  
(Lower risk)



**PTB**

**UWNQC**  
Utah Women & Newborns Quality Collaborative

## Unintended Pregnancy Challenges Children



- Increased rates of preterm birth
- More NICU stays
- More likely to die in the first year of life

- Less likely to graduate high school



Brown & Eisenberg  
The Best Intentions: Unintended Pregnancy and the Well-Being of Children and Families. Institute of Medicine, 1995

Family Planning =  
Big Time Cost Savings

**\$7.09**

**BIGGER FOR HIGH  
RISK WOMEN**

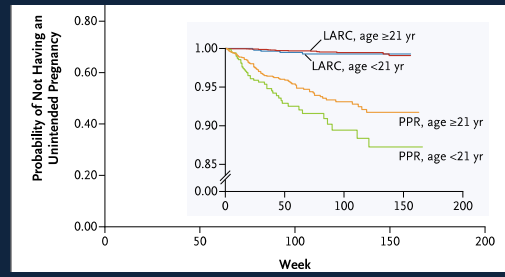
Societal cost of prematurity = \$26.2 Billion

Frost JJ et al. The Milbank Quarterly, 2014.  
Preterm Birth: Causes, Consequences, and Prevention. Nationalacademies.org

## An Experiment in St. Louis



## CHOICE: Probability of UIP



## Set It and Forget It

### Highly Effective Reversible Contraception

#### Copper T380A

- Hormone Free
- 12 yrs use



#### Mirena or Liletta IUD

- levonorgestrel released daily
- 5 years use

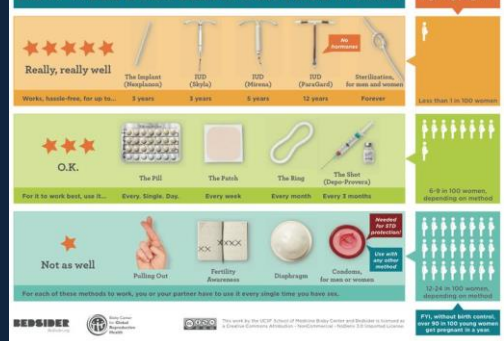


#### Implanon

- Etonorgestrel
- 3 years use



## HOW WELL DOES BIRTH CONTROL WORK?





## Two Utah Examples of Increasing HERC Access

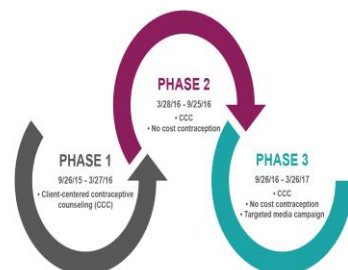


## #1) Increasing Overall Contraceptive Access in SLC

## The HER Salt Lake Contraceptive Initiative



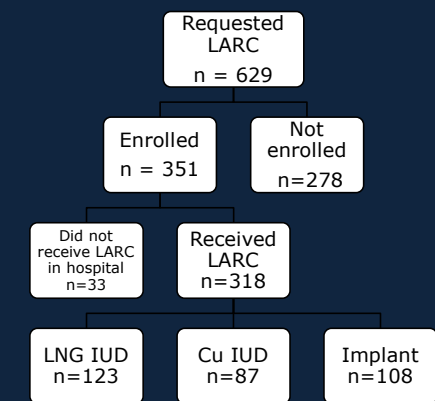
## Study Approach



## Sponsors and Collaborators



## #2) Increasing Postpartum HERC Access in SLC



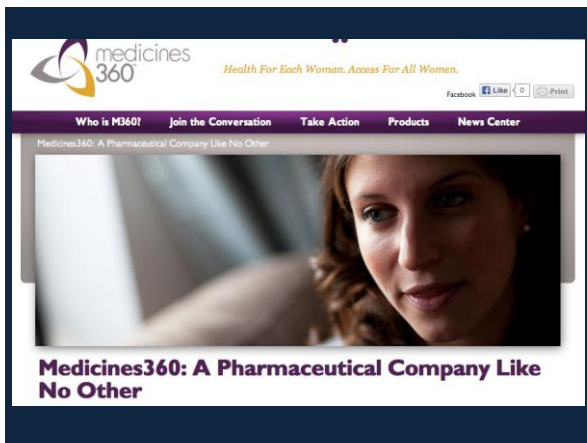
Eggebroten ACOG Annual Meeting, 2016

## In-hospital Postpartum IUD & Implants 6 Month Continuation

Eggebroten ACOG Annual Meeting, 2016

## Already Saving Utah Money

- LARC Program & other research projects
- 5,000 IUDs and Implanon devices have been inserted
- 1210 unintended pregnancies prevented
- Saved the state \$15.4 million in Medicaid expenditures



## US Medical Eligibility Criteria (US-MEC) for contraceptive use

- CDC coordinated, evidence based contraceptive
  - Characteristics
    - Age
    - Parity
    - Postpartum
  - Diseases
    - Diabetes
    - Migraines



## US MEC Categories



Category 1  
Use!



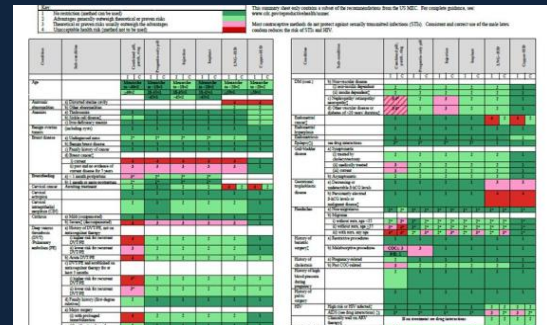
Category 2  
Consider & Use!



Category 3  
Consider & maybe  
Don't use!



Category 4  
Don't use!



Download the chart or get the app!

## CDC MEC for the Postpartum Period

Condition	Sub-Condition	CHC	POP	Injection	Implant	LNG-IUD	Cu-IUD
Postpartum (see also Breastfeeding)	a) <21 days	4	1	1			
	b) 21 days to 42 days						
	i) with other risk factors for venous thromboembolism (VTE)	3*	1	1	1		
	ii) without other risk factors for VTE	2	1	1	1		
	c) >42 days	1	1	1	1		
Postpartum (in breastfeeding or non-breastfeeding women, including post-caesarean section)	a) <10 minutes after delivery of the placenta					2	1
	b) 10 minutes after delivery of the placenta to <4 weeks					2	2
	c) ≥4 weeks					1	1
	d) Puerperal sepsis					4	4
Pregnancy		NA*	NA*	NA*	NA*	4*	4*

## CDC MEC for Breastfeeding

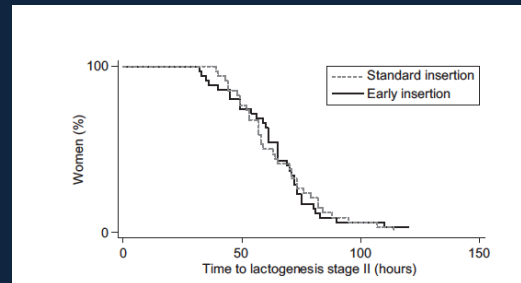
Condition	Sub-Condition	CHC	POP	Injection	Implant	LNG-IUD	Cu-IUD
Breastfeeding (see also Postpartum)	a) <1 month postpartum	3*	2*	2*	2*		
	b) 1 month or more postpartum	2*	1*	1*	1*		

Let's slay the 6 week postpartum visit myth forever

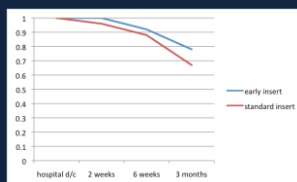
Have a plan in place before birth and execute it within 4 weeks

\*43% of women resume sex before 6 weeks

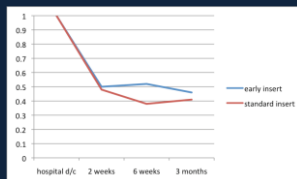
## RCT of PP Implant In-Hospital vs. Delayed



Gurtcheff et al. Obstet Gynecol 2011;117:1114-21.



Proportion of participants with **any** breastfeeding at each follow-up time period (p=NS)



Proportion of participants **fully** breastfeeding at each follow-up time period (p=NS)

Gurtcheff et al. ObstetGynecol 2011;117:1114-21

## Conclusion

- **In order to** → Decrease PTB
- **We need to** → Meet contraceptive needs
- **Via** → Improving access to all contraceptive methods, especially IUDs and implants

Questions?

Thank You

